

# THE MAMMAL SURVEY OF THE EASTERN GHATS.

## REPORT ON THE MONKEYS.

BY

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The Bonnet Macaques (*Macaca radiata*) and the Langurs (*Pithecus entellus*) recently obtained by Messrs. N. A. Baptista and V. S. La Personne on the Mammal Survey of the Eastern Ghats are sufficiently interesting to call for special notice. Their examination and comparison with examples previously secured by the Survey and already recorded in this Journal have incidentally brought to light some new facts demanding a revision of these monkeys in Southern India.

### THE BONNET MACAQUE (*Macaca radiata*).<sup>1</sup>

The localities, dimensions and other particulars of the examples of this monkey, supplied by the collector, N. A. Baptista, are as follows:—

Locality and Sex	Length of Head and Body.	Length of Tail.	Total Length.	Weight.	Date.
Malakondapenta, Kurnool District ♂	1' 8 $\frac{4}{5}$ "	1' 10 $\frac{2}{5}$ "	3' 7 $\frac{1}{5}$ "	12 lbs.	May 14
" " " ♂	1' 7 $\frac{3}{5}$ "	1' 9 $\frac{4}{5}$ "	3' 5 $\frac{3}{5}$ "	10 "	" " "
" " " ♀	1' 5 $\frac{2}{5}$ "	1' 7 $\frac{3}{5}$ "	3' 1 $\frac{3}{5}$ "	6 $\frac{1}{2}$ "	" " "
Shevaroy Hills, 4,500' ♂	1' 9 $\frac{3}{5}$ "	2' 0 $\frac{2}{5}$ "	3' 10 "	14 $\frac{1}{2}$ "	" " 19
Karumbapatti, Salem ♀	1' 5 $\frac{3}{5}$ "	1' 9 "	3' 2 $\frac{3}{5}$ "	...	Apr. 21

As will be explained in a subsequent paper, these skins, collected in April and May before the moult, are long and shaggy in the coat and pallid from fading, the distal portion of the hairs being greyish buff for a long distance. So far as their dimensions and weights

<sup>1</sup> By Blanford and many writers on Indian Monkeys this species was cited as *Macacus sinicus*; but Hinton and Wroughton (*Journ. Bomb. Nat. Hist. Soc.* 27, pp. 813-815, 1921), have shown that the name *sinicus* was given by Linnæus to its Ceylonese ally, the Toque Macaque, and that *radiata* is the earliest name that can be assigned to the Indian species. The correctness of this conclusion does not admit of a doubt.

are concerned they agree tolerably closely with other examples obtained by the Survey farther to the west and south in India ; and the particulars supplied show the average differences in size between the sexes.

Some dimensions in millimetres of the skulls are as follows :—

Locality and Sex	Total Length	Zygom. Width	Orbital Width	Length of Upper Molars	Lower Jaw
Malakondapenta, Kurnool. ♂ ad.	116	78*	60	32	83
„ „ ♂ subad.	110	73	58	31	76
„ „ ♀ just ad.	95	65	52	28	65
Shevaroy Hills. ♂ just ad.	120	76	61	33	86
Salem. ♀ ad.	105	64	55	30	74

As may be seen, the Kurnool specimens are noticeably smaller than those from the Shevaroy Hills. But a few millimetres in a monkey's skull, although on paper they suggest a considerable difference, do not in reality amount to much. The Shevaroy specimens, male and female, are as large as any obtained by the Survey from other localities and preserved in the British Museum.

#### THE LANGURS

##### *Pithecus entellus.*

When I published the monographic revision of the Indian Langurs assigned to *Pithecus entellus* (*Journ. Bomb. Nat. Hist. Soc.*, Vol. XXXII, pp. 472-498, 1928), there were no available specimens of the species from the south-eastern area of the peninsula to compare with the large numbers of specimens obtained by the Mammal Survey in the central, western and southern districts. As was to be expected therefore, the examples of this species recently collected in the Eastern Ghats prove to be of exceptional interest and in a great measure bear out the opinion I expressed (p. 478) that 'further collections in areas not yet investigated, like the eastern parts of India from Orissa to south of Madras, will almost certainly bring to light new local races and will perhaps show that some of the forms here nominally distinguished are based upon characters not deserving that distinction.'

The following examples were secured: four females of various ages collected in April at Diguvametta in the Kurnool District, one Sault female collected in November in the Nallamalai Hills, 2,000', d. Kurnool, one adult female collected in June at Dasarladoddi, the Palkonda Hills, 1,600', and one adult male collected in July at Tirthamalai, Salem, 1,000', in the Shevaroy Hills. Provisionally at all events I assign the Kurnool specimens to *Pithecus entellus anchises* and the Palkonda and Salem specimens to *Pithecus entellus pallipes*.

*Pithecus entellus anchises*, Blyth

*Presbytis anchises*, Blyth, *Journ. As. Soc., Bengal*, Vols. XIII, p. 470, 1844, and XVI, p. 733, 1847.

*Pithecus entellus anchises*, Pocock, *Journ. Bomb. Nat. Hist. Soc.*, Vol. XXXII, p. 488, 1928.

Blyth gave the name *anchises* to the skin of a langur from an unknown locality in the Deccan, describing it as like typical *entellus*, which has jet black hands and feet strongly contrasted with the paler arms and legs, but differing in having the hands mixed white and blackish and the feet whitish with dusky black above the base of the toes and on the terminal phalanges, the leg from the knee whitish and the coat very long.

The length of the coat in this specimen probably indicates that it was killed in mid-winter. But the chief interest of the skin lies in its supplying an intermediate stage in the tint of the hands and feet between typical *entellus* and typical *pallipes*.

In my paper, above quoted, I provisionally assigned to *anchises* some specimens obtained by the Survey, namely, a long-coated form collected in November in Hewra in Nimar, 1,000', and two from Seone Malwa, C. P. (S. H. Prater). These monkeys, as was pointed out, are not exactly alike, nor do they agree precisely with the description of *anchises*; but the Nimar specimen is intermediate between typical *entellus* and typical *pallipes* (cf. infra) in the coloration of the hands and feet; and one at all events of the examples from Seone Malwa is intermediate between typical *entellus* and *achates* in having the head somewhat paler than the shoulders, and between these two black-handed and black-footed races and the pale-handed and pale-footed *pallipes* in the partially pale hands and feet.

In the specimens from Diguvametta in Kurnool the hands and feet are paler than in the specimen from Seone Malwa, but the fingers and toes are brown or black and sharply contrasted with the grey tint of the arms and legs which spreads on to the top of the hands and feet. In the oldest specimen the contrast is most marked, the blackness of the digits extending along the inner edge of the hand and foot almost to the wrist and ankle. This specimen, too, is greyer and less buffy on the back than the others and has a decidedly grey patch on the crown of the head, thus approaching the condition seen in typical *entellus* and *pallipes* in which the top of the head is the same or almost the same tint as the shoulders and back. In the others the crown shows scarcely a trace of grey and is slightly paler than the back and shoulders, thus approaching the condition seen in *achates*, *iulus*, *priamellus* and other more western and southern forms in which the buffy head is sharply contrasted with the dark shoulders and back. In all these Kurnool specimens the cheeks, ventral surface and inside of the limbs and buttocks are whitish grey, or, at most, faintly tinged with buff, but there is a very appreciable amount of buff on the chest, and only an inch or so of the tip of the tail is pale.

The example from the Nallamalai Range, 2,000', shot in November, resembles those obtained in April at Diguvametta in the

general hue of the upper side of the tail, the outside of the limbs ; the hands and feet, and the crown is slightly paler than the shoulder, but the cheeks, buttocks, lower side and inside of the limbs are much more deeply suffused with buff. This skin is hardly distinguishable from the one, referred to above, from Hewra in Nimar, also procured in November, except that the coat is not so long. But, as explained below, this Langur differs from the Hewra specimen as well as from the other Kurnool examples in some cranial characters.

With the conversion of millimetres into English inches, the following table gives the weights and measurements taken in the flesh of the Kurnool examples :—

Locality and Sex	Head and Body	Tail	Total	Weight
Diguvametta, ♀ old ...	2' 1 $\frac{3}{8}$ "	3' 3 $\frac{3}{8}$ "	5' 4 $\frac{1}{8}$ "	24 lbs.
,, ♀ ad. ...	1' 11 $\frac{1}{5}$ "	3' 2"	5' 1 $\frac{1}{5}$ "	23 ,,
,, ♀ yng. ad. ...	1' 10 $\frac{2}{8}$ "	3' 1 $\frac{3}{8}$ "	5' 0"	22 ,,
Nallamalai, ♀ ad. ..	2' 0"	2' 11"	4' 11"	..

These particulars agree very closely with those of the females of *pallipes* and *thersites* given below.

The skull measurements in millimetres of the same specimens are as follows :—

Locality and Sex	Total Length	Zygom. Width	Orbital Width	Length of Upper Molars
Diguvametta ♀ old ...	108	85	69	34
,, ♀ ad. ...	105	81	66	35
,, ♀ yng. ad. ...	105	82	67	34
Nallamalai, ♀ ad. ...	106	85	66	30

As may be seen by the difference in the length of the upper molar series, these teeth are all smaller in the Nallamalai specimen, the first upper molar, penultimate tooth, being nearly 1 mm. shorter and narrower. The lower jaw too is different in shape owing to the greater development of its ascending ramus which has the lower and posterior edges more produced and the two rami are more widely divergent behind. In other characters the skulls are very similar : and on the evidence of one skull only from Nallamalai, nothing at present can be done with the differences beyond recording them.



*Pithecus entellus pallipes*, Blyth.

*Semnopithecus pallipes*, Blyth, *Ann. Mag. Nat. Hist.*, p. 312, 1844 (April).

*Semnopithecus priam*, Blyth, *Journ. As. Soc., Bengal*, Vol. XIII, pp. 470 and 476, 1844 (after October).

*Semnopithecus priamus*, Blyth, *Journ. As. Soc., Bengal*, Vol. XVI, pp. 732 and 1271, pl. 54, 1847 (in part); also Anderson and Blanford (in part).

When I described this race of *Pithecus entellus* two years ago, I followed Blyth, Anderson, Blanford and others in regarding the big langur, with the tufted head, which is found in Ceylon, as racially identical with the similar langur occurring in parts of southern India. And this course was justified by the close similarity in colour, size and other features between a number of examples from Ceylon and the only two Indian examples in the British Museum, namely, two adult males, one ticketed 50 miles S. of Trivandrum, Travancore (Col. F. W. Dawson), the other Arambo, at the foot of the Mahendragiri Range, Travancore (R. S. Pillay).

By the authors just quoted, and others, this Langur was called *Semnopithecus* or *Presbytis priamus*, although the earliest name Blyth gave to it was *pallipes*.

Now the typical examples, three in number, of *pallipes* (*priam*) came from the Coromandel Coast as stated by Blyth in 1843. Comparing this langur with *entellus* (*sensu stricto*), he said it has 'nought of the yellowish tinge and more of the *lait* in the chocolat au lait' tint of the body, the hands and the feet being pale and resembling the rest of the limbs, and the whiskers and nape whitish. In 1846 he extended the range to Ceylon and, on the authority of Jerdon who told him the species was common at Tellicherry, to the Malabar Coast.

In 1879 Anderson altered and amplified Blyth's description of the Coromandel specimens declaring them to be pale ashy grey on the top of the head, the back, the outside of the arm, the upper part of the thigh and the tail, apart from its paler tip, whereas the sides of the head, the nape, the lower half of the thigh, the hands, feet, under side of the body and inside of the limbs are yellowish. Anderson also pointed out that Ceylonese specimens are much darker, being of a pale vinaceous brown on the back, the crown, the outside of the limbs and the tail. Herein lies the interest of the adult female collected by N. A. Baptista on June 29 at Dasarladoddi, 1,600 feet in the Pakonda Hills in Cuddapah and the adult male collected in July at Tirthamalai 1,000 feet in the Shevaroy Hills in Salem.

In the male, the general colour of the upper side from the crown of the head to the root of the tail is olive or brownish grey, the nape being buffy and in conjunction with the white cheeks and brow-band setting off the tufted crown. The outsides of the upper arm and thigh are the same tint as the back, but below the elbow and knee the limbs become gradually paler, the hand being pale grey and blending with the wrist, whereas on the leg the grey dies out at the ankle leaving the foot white with some darker hairs on

the knuckles. The tail apart from the tip is blacker grey than the back; and the under side, the inside of the limbs, like the whiskers, are whitish.

This male does not seem to differ in any respect from Blyth's brief description of *pallipes* (*priam*); but the female, which resembles it in the tint of the upper side, differs in having the brown of the crown paler and blending more with the frontal band and cheeks, which are not so white and the nape considerably paler, the chest and belly decidedly washed with buff, some black hairs on the fingers and more grey on the toes. In the tint of the pale parts at least it recalls the examples described by Anderson; and since the Palkonda Range is midway between Kurnool to the north and Salem to the south, it is interesting to note that but for the tuft on the crown and the paler hands and feet in which it is more like the male from Salem, it is not separable from the examples from Kurnool assigned to *anchises*.

Both these specimens bear out Anderson's statement that Coromandel Coast Langurs with the tufted crown and hands and feet the same tint as the arms and legs are paler than Ceylonese examples exhibiting the same features. Now that I have seen Coromandel Coast examples, I think the two types represent distinct local races. The Coromandel form carries the very appropriate name *pallipes* and the Ceylon form the name *thersites* given by Blyth in 1847 to an isolated example, secured near Trincomalee, which he named because it had no tuft on the head. This tuft, however, although present in perhaps 95 per cent. of Ceylonese examples, is not invariably present. In addition to Blyth's record of its absence in the type of *thersites*, Kelaart recorded a second case and one of several specimens collected by Major E. W. Mayor for the Survey at Mankeni, near Trincomalee, constitutes a third.

As stated above, there are two examples of Langurs in the British Museum, from Travancore, which seem to be inseparable in colour from the Ceylon form, *thersites*. The question now arises: to which of the two races, *pallipes* or *thersites*, do the Langurs of this type inhabiting the Nilgiri Hills belong? I have seen no skins from these hills, only two skulls certified by Blanford and Thomas as having been taken from head-skins referable to *priam*. But this opinion must be taken *cum grano* and left as uncertain until skins come to hand to settle the point.

When I discussed this Ceylonese Langur in 1928, I had only a few specimens for examination. Since then Mr. T. Fry has shown me a very large number of skins and skulls collected for the Survey in various parts of the island by Major E. W. Mayor. Some notes on this fine series may be useful.

Although the colour of these Langurs is subject to considerable variation, I have been unable definitely to associate the variations either with locality or season.

In a series collected at Mankeni in September and October the general colour of the back and head is typically dark-brown with a varying amount of paler buff-tipped hairs on the nape and a general absence of long glistening hairs on the body. The arms above are

like the back, but below they lose the brown hue, the tint, passing into blackish grey on the hands. The thigh, apart from the pale buttock, is like the back, but below the knee the leg becomes paler and greyer passing gradually into the pale whitish grey foot. The tail also is like the back apart from its pale tip. The whiskers, under side and inside of the limbs, are greyish white.

One female, however, collected on September 28, is a good deal paler than the others, the hairs of the neck, shoulders and fore back having long buffy tips as if the coat was old and fading. This is the example referred to above which has no definite crest on the crown.

Several specimens collected at Cheddikulam in November and December generally resemble the darker specimens from Mankeni. But one adult male, shot on December 3, has more long glistening hairs on the shoulders and back. Another adult male has the cheeks, throat, chest and abdomen tinged with buff, like one of the specimens from Travancore. Two females, collected on December 2, are paler and shabbier looking in the coat.

A male from Kala Oya, shot on May 14, is dark brown like the September Mankeni specimens; but a female from Tammanewa, near Kala Oya, killed in the same month is paler than the Mankeni set, but the coat is in no sense deteriorating.

A female from Ranna (S. P.), collected on May 20, is also palish brown but the streaky look of the pelage suggests the imminence of the moult. A young female taken two days earlier at the same place is buffy grey in hue, the palest Ceylonese specimen observed.

An adult female, shot on June 10 at Kirinda (S. P.), has a markedly faded washed-out appearance, being 'straw coloured' over the shoulders with an abundance of very long rather coarse hairs with bleached glistening ends. But a male from Welligatta, shot on June 24, is in colour and texture of coat hardly distinguishable from the male shot at Cheddikulam on December 3. A female from Arucam Bay, shot on August 22, has a pale faded appearance.

These contradictory details show the difficulties in the way of understanding the changes in colour and coat of this Ceylonese Langur. The explanation of them will probably be reached only by an intensive study of the monkeys by some naturalist resident in the island.

The principal dimensions and weights, taken in the flesh, of some of the langurs assigned to *P. entellus pallipes* and *P. entellus thersites* are as follows:—

Locality and Sex	Length of Head and Body	Length of Tail	Total Length	Weight	—
Salem, E. Ghats, ♂ ad.	2' 1½"	3' 3½"	5' 4½"	37 lbs.	<i>pallipes</i> .
Arambo, Travancore, ♂ ad.	1' 11¾"	2' 8"	4' 7¾"	...	...



Locality and Sex	Length of Head and Body	Length of Tail	Total Length	Weight	—
Cheddikulam, Ceylon, ♂ ad.	2' 1"	3' 0"	5' 1"	25½ lbs.	<i>thersites.</i>
„ „ ♂ ad.	1' 11 $\frac{4}{5}$ "	2' 8"	4' 7 $\frac{4}{5}$ "	29½ „	„
Mankeni, „ ♂ ad.	2' 0"	2' 11 $\frac{3}{5}$ "	4' 11 $\frac{3}{5}$ "	27½ „	„
„ „ ♂ ad.	1' 10 $\frac{3}{5}$ "	2' 8 $\frac{2}{5}$ "	4' 7 $\frac{1}{5}$ "	24½ „	„
Palkonda Hills, Cuddapah, ♀ ad.	1' 11 $\frac{1}{5}$ "	3' 1 $\frac{4}{5}$ "	5' 1"	19½ „	<i>pallipes.</i>
Cheddikulam, Ceylon, ♀ ad.	1' 10"	2' 7"	4' 5"	19 „	<i>thersites.</i>
Mankeni, „ ♀ ad.	1' 8 $\frac{4}{5}$ "	2' 8 $\frac{2}{5}$ "	4' 5 $\frac{2}{5}$ "	16 „	„
„ „ ♀ ad.	1' 9"	2' 5"	4' 2"	14 „	„
Arucam Bay, „ ♀ ad.	1' 10 $\frac{1}{5}$ "	2' 6 $\frac{3}{5}$ "	4' 4 $\frac{4}{5}$ "	...	„

From this table it will be seen that the male of *pallipes* from Salem, although only slightly longer than the longest male of *thersites*, is considerably heavier than the heaviest and about 10 lbs. heavier than the average weight of the four males, the largest recorded, of the Ceylon race entered in the table. The figures bear out Blanford's guess that 'Madras specimens are probably larger than Ceylonese'.

Some cranial measurements in millimetres of the Indian specimens and a few of the Ceylonese are as follows:—

Locality and Sex	Total Length	Zygom. Width	Orbita Width	Length of Upper Molar	—
Salem, E. Ghats, ♂ ad.	127	102	80	36	<i>pallipes.</i>
Arambo, Travancore, ♂ ad.	123	95	78	32	? <i>thersites.</i>
Nilgiri Hills, ♂ ad.	122	97	78	34	? <i>pallipes.</i>
Valaichenai, Ceylon, ♂ ad.	119	87	71	29	<i>thersites.</i>
Cheddikulam, ♂ old.	118	91	76	30	„
Mankeni, ♂ ad.	113	89	67	32	„
„ ♂ ad.	109	87	72	30	„
Palkonda Hills, ♀ ad.	106	81	67	33	<i>pallipes.</i>
Nilgiri Hills, ♀ ad.	102	84	65	30	? <i>pallipes.</i>
Mankeni, ♀ ad.	103	75	60	30	<i>thersites.</i>
Kala Oya, ♀ ad.	100	82	68	30	„
Arucam Bay, ♀ ad.	100	77	60	28	„



The skull of the example *pallipes* from Salem is noticeably bigger in all the dimensions recorded than the skulls of the males of *thersites*, the largest available for measurement. The skulls from the Nilgiri Hills and Travancore are nearly intermediate between the two. These two skulls differ extraordinarily in shape, as illustrated and described on p. 497 of my paper already quoted. The skull from Salem serves to link in a measure the differences between them. The forehead is flatter than in the Travancore skull, the nose is intermediate in prominence between the two, the occiput is not so uptilted and the mandible is not so massive and arcuate nor is its symphysis so long as in the example from the Nilgiris.

The teeth of *pallipes* are also bigger than of *thersites*. This is shown in the table by the greater length of the upper molar series in the male from Salem and the female from the Palkonda Hills as compared with that of the examples from Ceylon, and the first true molar, the penultimate tooth of the row, is nearly 1 mm. longer and broader in the Coromandel than in the Ceylonese specimens. In the Nilgiri Hill and Travancore specimens, the teeth are of the larger kind.